TOWN LAKE REPORT CARD

DATE OF EVALUATION: *Includes all post-storm event and recovery readings for month.* **Feb-03** CONDITION **FAIR** SCORE **73**

PREVIOUS EVALUATION: **Jan-03** CONDITION **EXCELLENT** SCORE **93**

			4 pts	3 pts	2 pts	1 pt	
CONDITION	RESULT	RATIONAL	EXCELLENT	GOOD	FAIR	POOR	SCORE
Transparency - SDz (m) avg.	**0.86**	aesthetics	1.5-2.0	1.0-1.4	0.5-0.9	<0.5	**2**
Dissolved oxygen (mg/L)	**5.3-10.5**	aquatic life, sediment nutrient release, odors	>7.0	5.6-6.9	4.1-5.5	<4.0	**2**
Nitrogen, total (mg/L)	**1.44**	algae and macrophyte growth	<0.5	0.6-1.0	1.0-2.0	>2.0	**2**
Phosphorus, total (mg/L)	**0.107**	algae and macrophyte growth	<0.05	0.06-0.20	0.21-0.50	>0.5	**3**
Turbidity (NTU) avg.	**22.9**	aesthetics, State std	<10	11-25	26-50	>50	**3**
Chlorophyll-a (ug/L) avg.	**22.5**	aesthetics, oxygen balance	<20	21-50	50-75	>75	**3**
Algae density (no./mL)	**8.9×10^4**	aesthetics	$<1 \times 10^5$	$1\text{-}5 \times 10^5$	5×10^5 -1×10^6	$>1.0 \times 10^6$	**4**
Macrophytes (% cover)	**5**	aesthetics, boating	none	<10%	11-20%	>20%	**3**
Depth, maximum (m)	**19**	macrophyte management	>5	4-5	2-4	<2	**4**
Midge larvae (no.per sq m)	**27**	aesthetics	<200	200-400	500-800	>800	**4**
Mosquitoes (no/trap night)	**3**	aesthetics and public health	<20	21-50	51-100	>100	**4**
Algae form (dominant)	**blue-green filaments**	aesthetics, treatability	greens or diatoms; no floating mats	greens and blue-greens; few floating mats	green filamentous, floating mats common	blue-green filamentous; floating mats dominant	**2**
pH (SU) avg.	**8.5**	swimming, fishery, ammonia toxicity	6.5-8.0	8.0-9.0	9.0-10.0	>10.0	**3**
Odors	**absent**	aesthetics	absent	slight	moderate	strong	**4**
Coliform bacteria (#/100 mL) avg.	**5010**	public health	<100	100-200	201-1000	>1000	**1**
Fecal bacteria (#/100 mL) avg.	**1853**	public health	<100	100-200	201-800	>800	**1**
E. coli bacteria (#/100 mL) avg.	**1140**	public health	<20	21-80	81-200	>200	**1**
Carlson Trophic Status	**65**	eutrophication	<60	61-70	71-80	>80	**4**
Color	**green; murky plant debris**	aesthetics	clear to slightly greenish	fairly clear, slightly greenish	greenish; pieces of algae and plants	very green; algae bloom	**1**
Waterfowl (no. per acre)	**<2**	nutrient and bacteria loading	<2	2-5	6-10	>10	**4**

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CONDITION	RESULT	RATIONAL	EXCELLENT	GOOD	FAIR	POOR	**SCORE**
Benthos	**midge and dragonfly larvae**	fishery	high species diversity-intolerant species; shallow sediments; low organic content	moderate diversity-mostly intolerants; moderate sediment depth & organics	moderate diversity-mostly tolerant species; moderate sediment depth; high organic content	low diversity-mostly tolerant species; deep sediments; high organic content	**3**
Sedimentation (cm/yr)	**shallow sediment**	reduced lake volume, macrophytes	shallow sediment, low organics, <1 cm/yr deposited	shallow sediment, low organics, 1-3 cm/yr deposited	moderately deep sediment, moderate organics, 1-3 cm/yr deposited	deep sediment, high organics, >3 cm/yr deposited	**4**
Fishery	**no problem observed**	recreation, aesthetics	no fish piping; no fish kills	some fish piping, gulping; no fish kills	fish piping before dawn; occasional fish kills	fish piping common; fish kills common	**4**
Shoreline/banks	**minimal shoreline filaments**	aesthetics	no evidence of salt crusts or algal scums	some white deposits and scums	numerous patches of salt deposits and algae scums	most of lake shore covered with crusts or scums	**4**
Zooplankton density	**$7.3x10^3$ cladocerans& rotifers dominant**	fish food organisms, algae control	abundant; cladocerans dominate	abundant; copepods & rotifers dominate	moderate; rotifers and copopods dominate	low; rotifers dominate	**3**

SCORING KEY:	Excellent	Good	Fair	Poor
	90-100	75-89	50-74	25-49

Definitions: Ratings

Excellent: Lake aesthetic and operational conditions above level of expectation.
Good: Lake aesthetic and operational conditions at level of expectation.
Fair: Lake aesthetic and operational conditions slightly below level of expectation.
Poor: Lake aesthetic and operational conditions considerably below level of expectation.

Definitions: Terms

Benthos: Bottom dwelling organisms
Carlson Trophic Index: A series of calculations incorporating transparency, chlorophyll and phosphorus data used to provide a quantitative estimate of the degree of eutrophication in a lake.
Chlorophyll: Pigment in green plants involved in photosynthesis used to estimate the density of algae in the water column.
Coliform bacteria: Enteric bacteria used as an indicator of the sanitary condition of the water.
Eutrophication: Process by which lakes age by increasing in nutrient (nitrogen and phosphorus) content and plant life.
Fecal bacteria: Any of the bacteria types provided by the fecal matter of warm-blooded organisms.
Macrophyte: Large plant, observable without the aid of a microscope, that may be floating, submerged or emergent.
Midge: Small, flying, non-biting "gnat-like" insect whose larval stage exists in the lake sediments (bloodworm).
N/A: not applicable; insufficient data or too early in development of lake (an arbitrary 3 rating is provided for these items).
pH: Amount of acid in the water identified on a scale of 1-14; 1 being most acid, 7 being neutral, and 14 being most caustic.
Phytoplankton (algae): Microscopic plant fraction of the plankton community.
Piping: Act of fish coming to surface of water and capturing a bubble of air in their mouth; a sign of low oxygen concentrations.
Plankton: Organisms of relatively small size that have relatively small powers of locomotion or that drift in the water.
Sedimentation: Rate at which solids accumulate on the lake bottom.
Transparency (SDz): Depth to which a standard disk can be observed in the water column.
Turbidity: Degree to which particles and color in the water scatter light; the "cloudiness" of the water.
Zooplankton: Animal fraction of the plankton community